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EXAMINER

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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/037,595
Filing Date: January 04, 2002
Appellant(s): BASKEY ET AL.

Gero G. McClellan (44,227).
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 05/05/2006 appealing from the Office action mailed 09/07/2005.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

2003/0217184	NAIR	11-2003
6,055,576	BEIGHE	4-2000
6,822,966	PUTCHA	11-2004

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1-3, 5-10, 12-13, 15-21 and 24-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application Publication 2003/0217184 by Nair (Nair) in view of U.S. Patent 6,055,576 by Beighe (Beighe).

With respect to Claim 1, Nair teaches a method of processing messages in a computer comprising:

in response to a request from a server application, allocating a system supplied buffer to the server application (Page 3 [0025]), wherein the server application is configured to exchange data with a client application running on another computer (Page 2 [0020]) and wherein the system supplied buffer is of a sufficient size to contain the data (Page 3 [0025]);

writing the data to the system supplied buffer (Page 3 [0025] and [0028]-[0030]);

passing the system supplied buffer to a communication layer to allow the server application to continue processing while the data is sent to the client (Page 3 [0028]-[0030]); and

sending the data from the system-supplied buffer to the other computer via a network (Page 3 [0028]-[0030]); and

freeing memory consumed by the system supplied buffer (Page 3 [0028]-[0030]).

Nair further teaches communications between machines on a network are typically handled through a protocol such as TCP (Page 1, [0002], Page 2-3 [0019] and [0022]).

Nair does not explicitly disclose using a networked based socket. However, Beighe teaches that TCP is a well known protocol that implements networked based sockets in order to allow a server application to communicate with a client application (Col. 2 lines 46-62). The sockets at the TCP/IP layer are used in conjunction with buffers for receiving and transmitting messages (Col. 3 lines 9-58).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to take the method disclosed by Nair and modify it as indicated by Beighe such that the method further comprises wherein the server application is configured to exchange data with a client application running on another computer using a network based socket; passing the system supplied buffer to the network-based socket to allow the server application to continue processing while the data is sent to the client; and sending, by way of the network-based socket, the data from the system-supplied buffer to the other computer via a network. One would be motivated to have

this, as communications between servers and clients are commonly implemented through TCP sockets (In Beighe: Col. 2 lines 46-62), and Nair specifically suggests and implements the use of TCP for communicating between servers and clients (Page 1, [0002], Page 2-3 [0019] and [0022]).

With respect to Claim 2, Nair further teaches the messages are client-server messages (In Nair: Page 3 [0030] and Page 1 [0002]) *and* (In Beighe: Col. 2 lines 46-62).

With respect to Claim 3, Nair further teaches the data is sent over a sockets streaming protocol (In Nair: Page 1, [0002], Page 2-3 [0019] and [0022]) *and* (In Beighe: Col. 2 lines 46-62).

With respect to Claim 5, Nair further teaches wherein sending is performed without first copying the data into another buffer (In Nair: Page 2 [0021]).

With respect to Claim 6, Nair further teaches the writing is performed by the server application (In Nair: Page 2 [0020] and Page 3 [0025]-[0030]).

With respect to Claim 7, Nair further teaches prior to providing the system supplied buffer to the server application: receiving, by a socket, other data from the another computer via the network; and allocating the system-supplied buffer to contain the other data (In Nair: Page 3 [0025]).

With respect to Claim 8, Nair further teaches wherein providing the system-supplied buffer to the server application comprise acquiring, by a socket, the system-supplied buffer from memory space not allocated to the server application (In Nair: page 3 [0025]).

With respect to Claim 9, Nair further teaches wherein the system-supplied buffer is provided to the server application by a socket in response to a buffer acquisition function call from the server application (In Nair: Page 3 [0025]).

With respect to Claim 10, Nair further teaches wherein the system-supplied buffer is provided to the server application by a socket after the sockets server application requests client data received over a client connection with the another computer (In Nair: Page 3 [0025] and [0030]).

With respect to Claim 12, Nair teaches a computer readable medium containing a communications program which, when executed by a computer, performs operations for processing messages, the operations comprising:

in response to a request from a server application, allocating a system supplied buffer to the server application (Page 3 [0025]), wherein the server application is configured to exchange data with a client application running on another computer using the communications program (Page 2 [0020] and Page 3 [0030]), and wherein the system supplied buffer is of a sufficient size to contain the data (Page 3 [0025]);

receiving the system-supplied buffer from the server application, wherein the system-supplied buffer contains data written to the system-supplied buffer by the server application (Page 3 [0025] and [0028]-[0030]);

sending, by way of the communications program, the data from the system supplied buffer to the another computer via a network (Page 3 [0025] and [0028]-[0030]), thereby allowing the server application to continue processing while the data is sent to the client (Page 3 [0028]-[0030]); and

returning the allocated system supplied buffer to the computer (Page 3 [0028]-[0030]).

Nair further teaches communications between machines on a network are typically handled through a protocol such as TCP (Page 1, [0002], Page 2-3 [0019] and [0022]).

Nair does not explicitly disclose the communications program is sockets based. However, Beighe teaches that TCP is a well known protocol that implements networked based sockets in order to allow a server application to communicate with a client application (Col. 2 lines 46-62). The sockets at the TCP/IP layer are used in conjunction with buffers for receiving and transmitting messages (Col. 3 lines 9-58).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to take the medium disclosed by Nair and modify it as indicated by Beighe such that the communications program is sockets based. One would be motivated to have this, as communications between servers and clients are commonly implemented through TCP sockets (In Beighe: Col. 2 lines 46-62), and Nair specifically suggests and implements the use of TCP for communicating between servers and clients (Page 1, [0002], Page 2-3 [0019] and [0022]).

With respect to Claim 13, Nair further teaches the messages are client-server messages (In Nair: Page 3 [0030] and Page 1 [0002]) *and* (In Beighe: Col. 2 lines 46-62).

With respect to Claim 15, Nair further teaches wherein sending is performed without first copying the data into another buffer (In Nair: Page 2 [0021]).

With respect to Claim 16, Nair further teaches the writing is performed by the server application (In Nair: Page 2 [0020] and Page 3 [0025]-[0030]).

With respect to Claim 17, Nair further teaches prior to allocating the system-supplied buffer to the sockets server application: receiving, by the communications program, over a socket (In Beighe: Col. 2 lines 46-62), other data from the another computer via the network; and allocating the system-supplied buffer to contain the other data (In Nair: Page 3 [0025]).

With respect to Claim 18, Nair further teaches wherein providing the system-supplied buffer to the server application comprises acquiring, by a socket, the system-supplied buffer from memory space not owned by the server application (In Nair: page 3 [0025]).

With respect to Claim 19, Nair further teaches wherein the system-supplied buffer is provided to the server application by the communication program using a socket (In Beighe: Col. 2 lines 46-62) in response to a buffer acquisition function call from the server application (In Nair: Page 3 [0025]).

With respect to Claim 20, Nair further teaches wherein the system-supplied buffer is provided to the server application by a receive operation issued from the server application and wherein the system-supplied buffer contains client data from another computer (In Nair: Page 3 [0025] and [0028]-[0030]).

With respect to Claim 21, Nair further teaches wherein providing the system-supplied buffer comprises allocating the system-supplied buffer according to a size of the client data (In Nair: Page 3 [0025]).

With respect to Claim 24, Nair teaches a computer in a distributed environment, comprising:

a network interface configured to support a network connection with at least one other computer in the distributed environment (Page 1 [0002], [0004],[0005], Page 2 [0020] and Page 3 [0023]);

a memory containing contents comprising: an operating system (Page 2 [0014]-[0019]) ; a server application (Page 1 [0002], (Page 2 [0014]-[0019]), Page 3 [0025], [0030]); a communication facility (Page [0018]-[0019]);

a system-owned memory space from which to allocate system-supplied buffers (Page 3 [0025]);

an application owned memory space owned by the server application (Page 2 [0020] and Page 3 [0027]-[0030]); and

a processor configured by at least a portion of the contents to perform operations for processing client-server messages, the operation comprising:

in response to a request from the server application, allocating a system supplied buffer to the server application (Page 3 [0025]), wherein the server application is configured to exchange data with a client application running on another computer using the communications facility (Page 2 [0020] and Page 3 [0030]), and wherein the system supplied buffer is of a sufficient size to contain the data (Page 3 [0025]).

Nair further teaches communications between machines on a network are typically handled by the communications facilities through a protocol such as TCP (Page 1, [0002], Page 2-3 [0019] and [0022]).

Nair does not explicitly disclose a sockets-based communication facility and further using a network based socket. However, Beighe teaches that TCP is a well known protocol that that is sockets-based and implements networked based sockets in order to allow a server application to communicate with a client application (Col. 2 lines 46-62). The sockets at the TCP/IP layer are used in conjunction with buffers for receiving and transmitting messages (Col. 3 lines 9-58).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to take the computer disclosed by Nair and modify it as indicated by Beighe such that the computer further comprises a sockets based communication facility and wherein the server application is configured to exchange data with a client application running on another computer using a network based socket. One would be motivated to have this, as communications between servers and clients are commonly implemented through TCP sockets (In Beighe: Col. 2 lines 46-62), and Nair specifically suggests and implements the use of TCP for communicating between servers and clients (Page 1, [0002], Page 2-3 [0019] and [0022]).

With respect to Claim 25, Nair further teaches the messages are client-server messages (In Nair: Page 3 [0030] and Page 1 [0002]) *and* (In Beighe: Col. 2 lines 46-62).

With respect to Claim 26, Nair further teaches the data is sent over a sockets streaming protocol (In Nair: Page 1, [0002], Page 2-3 [0019] and [0022]) *and* (In Beighe: Col. 2 lines 46-62).

With respect to Claim 27, Nair further teaches wherein sending is performed without first copying the data into another buffer (In Nair: Page 2 [0021]).

With respect to Claim 28, Nair further teaches wherein providing the system-supplied buffer to the server application comprises acquiring, by the socket, the system-supplied buffer from the system-owned memory space (In Nair: Page 3 [0025]).

With respect to Claim 29, Nair further teaches writing data into the system-supplied buffer; returning the system-supplied buffer to the socket-based communication facility; and sending the data from the system-supplied buffer to the at least one other computer (In Nair: Page 3 [0025]-[0030]).

With respect to Claim 30, Nair further teaches wherein the system-supplied buffer is returned to the socket-based communication facility on a send operation and wherein sending comprises detaching the system-supplied buffer from the send operation to allow the server application to continue processing while the data is sent (In Nair: Page 3 [0025]-[0030]).

With respect to Claim 31, Nair further teaches the processor is configured to provide the system-supplied buffer to the server application by the socket in response to a buffer acquisition function call from the server application (In Nair: Page 3 [0025]).

Claims 22, 23 and 32-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nair in view of Beighe as applied to claims 20 and 24 above, and further in view of U.S. Patent 6,822,966 by Putcha et al. (Putcha).

With respect to Claim 22, Nair in view of Beighe teaches all the limitations of Claim 20 and but does not explicitly disclose wherein the receive operation is configured with a buffer mode parameter indicating to the socket a buffer acquisition method for acquiring system-supplied buffer.

Putcha teaches a buffer mode parameter which indicates a buffer acquisition method for acquiring a buffer (Col. 4 lines 18-33).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to take the medium disclosed by Nair in view of Beighe and modify it as indicated by Putcha such that the medium further comprises wherein the receive operation is configured with a buffer mode parameter indicating to the socket a buffer acquisition method for acquiring system-supplied buffer. One would be motivated to have this, as there is need for efficiently allocating buffers for data transmission (In Putcha: Col. 4 lines 7-33).

With respect to Claim 23, Nair in view of Beighe further teaches the receive operation is further configured with a record definition specifying to the socket a format of the client data (In Nair: Page 2-3 [0020] and [0022]-[0025])

With respect to Claim 32, Nair in view of Beighe teaches all the limitations of Claim 24 and further teaches wherein the system-supplied buffer is provided to the server application by a receive operation issued from the server application and wherein

the system-supplied buffer contains client data from another computer (In Nair: Page 3 [0025] and [0028]-[0030]).

Nair in view of Beighe does not explicitly disclose wherein the receive operation is configured with a buffer mode parameter indicating to the socket a buffer acquisition method for acquiring system-supplied buffer. Putcha teaches a buffer mode parameter which indicates a buffer acquisition method for acquiring a buffer (Col. 4 lines 18-33).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to take the computer disclosed by Nair in view of Beighe and modify it as indicated by Putcha such that the computer further comprises wherein the socket is configured by a receive operation issued from the server application and configured with a buffer mode parameter indicating to the socket a buffer acquisition method for acquiring system-supplied buffer. One would be motivated to have this, as there is need for efficiently allocating buffers for data transmission (In Putcha: Col. 4 lines 7-33).

With respect to Claim 33, Nair in view of Beighe further teaches wherein providing the system-supplied buffer comprises allocating the system-supplied buffer according to a size of the client data (In Nair: Page 3 [0025]).

With respect to Claim 34, Nair in view of Beighe further teaches the receive operation is further configured with a record definition specifying to the socket a format of the client data (In Nair: Page 2-3 [0020] and [0022]-[0025]).

(10) Response to Argument

Argument A - (Page 12 of the appeal brief):

Appellant argues on page 12 of the appeal brief, *"The buffers included in the 'buffer pool' disclosed by Nair are used exclusively and independently by the 'protocol modules' in processing data from or passing data to, an application program. Thus, as taught by Nair, any buffers used by the server application are separate from any buffers used by a protocol module from a 'buffer pool'."*

Examiner's response to Argument A:

As discussed by Appellant, the "buffer pool" taught by Nair is related to the "protocol modules". Page 1, [0003], of Nair discusses protocol modules, stating that they are software modules implementing the protocols of the protocol stacks such as those found in the Open Systems Interconnection (OSI) reference model. The protocol stack shows the relationship of lower layer protocols to higher layer protocols. It is important to note that the OSI reference model of the protocol stack includes an application layer as the highest layer. Nair also explicitly refers to the application layer, for example, on page 3, [0030], stating "receiving at the top of the protocol stack a data frame from a higher layer application program" (emphasis added). The examiner considers this to be evidence that the protocol stack of Nair is implemented by protocol modules that include a protocol module for the application layer. This protocol module is associated with and used by the server application for exchanging messages across a network to another application (Page 2, [0020] and Page 3 [0030]).

The invention taught by Nair improves on the prior art protocol processing where each protocol module provides for its own buffer space for temporary storage

while processing data particular to that protocol (Page 1 [0004]). Nair teaches sharing the same buffer space between each of the protocol software modules to reduce the "computation time required to read and write data from one buffer to another buffer" and reduce the "memory required to process information exchanged between the machines in a network" by (Page 1, [0006]). Taking this into consideration in combination with the evidence that the application layer has its own related protocol module, it is clear that the shared buffer space also applies to the server application that is exchanging messages over a network using the protocol stack. In other words, the buffers used by the server application for the exchange of data are not separate from any buffers used by a protocol module from a buffer pool as the application layer accounts for one of the protocol modules. Furthermore, the examiner does not see any specific evidence or statement by Nair of a separate buffer being used in addition to the shared buffer space. There is no discussion of a different buffer pool or buffer memory. Such an assertion is in contradiction to the overall purpose of the invention of Nair.

Argument B - (Page 13 of the appeal brief):

Applicant argues on page 13 of the appeal brief, *"Because Nair is directed to the use of a localized buffer pool used exclusively by the protocol modules, Nair fails to disclose a system supplied buffer being allocated to a server application. In fact, Nair discloses that once the data frame is provided to the server application "the buffer [used by the network protocol software modules] is no longer needed." Clearly, the operations performed by the server application are distinct from those used to manage a buffer within different layers of the protocol stack."*

Examiner's response to Argument B:

As discussed above in the response to argument A, the protocol modules of Nair include a protocol module corresponding to an application layer associated with the server application. Therefore, it is not clear that the operations of the server application are distinct from the shared buffer space of Nair. For the purpose of exchanging data with a client application as the server application is configured in claim 1, the invention of Nair allocates a buffer to the server application through the protocol module associated with application layer (page 3 [0030] and [0025] - describing the process of allocation of shared system buffers is equally applicable to the transmission of data across the network).

In regards to appellants comment, *"In fact, Nair discloses that once the data frame is provided to the server application "the buffer [used by the network protocol software modules] is no longer needed."*, it is first noted that this is the description of an incoming frame, not a frame being processed to be transmitted to a client application as claimed. Additionally, it should be understood that once the data is fully processed by

the communication modules, the system buffer is no longer needed. Appellant's claims imply such with the limitation "freeing memory consumed by the system supplied buffer."

Argument C - (Pages 13-14 of the appeal brief):

Appellant argues on page 13-14 of the appeal brief, "*Nair does disclose that a protocol module may allocate a buffer for data transmissions "down" the protocol stack...It is not until after receiving a data frame, either from the network connection or from a "higher level application," that Nair discloses doing anything at all - Nair is silent on what occurs before the data frame is received, which is where the allocation suggested by the Examiner (Advisory Action, p.3) would occur. Applicants submit, therefore, that Nair fails to disclose the operations of allocating a system supplied buffer to a server application, and instead, that Nair discloses the use of a private, localized buffer pool from which to allocate a buffer after receiving a data frame.*"

Examiner's response to Argument C:

Page 3, [0030] states in part,

"the process of the present invention is equally applicable to receiving at the top of the protocol stack a data frame from a higher layer application program, and passing control of processing the frame of data down the protocol stack in the machine in preparation for transmitting the data frame from the machine and over the attached network to another machine connected to the network."

The examiner considers the act of receiving the data frame is a form of a request, as it should be understood that the purpose for sending the data down the protocol stack is a request by the application to send the data to the other machine over the network

according to the corresponding protocols of the stack. The server application is allocated a shared buffer in response to this request, the allocation occurring at the top of the stack. As described above, Nair discloses the use of the standard OSI reference model for a protocol stack (Page 1 [0003]). The top of the OSI protocol stack is the application layer, which would correspond to the "higher layer" application program of Nair. Based on this evidence, the examiner asserts the server application is allocated a system-supplied buffer and that this allocation is "in response to a request from a server application".

Argument D - (Page 14 of the appeal brief):

Appellant relies on the arguments above for the dependent claims 2, 3, 5-10, 13, 15-21 and 25-31.

Examiner's response to Argument D:

Examiner relies on the previous responses to address argument D.

Argument E - (Page 14 of the appeal brief):

Appellant relies on the arguments above for the dependent claims 22, 23 and 32-34.

Examiner's response to Argument D:

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Examiner relies on the previous responses to address argument E.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

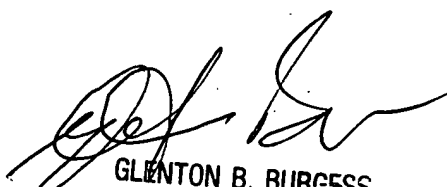


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